

INVERTEBRATA

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Library
Queen Victoria Museum
and Art Gallery
Launceston

Issue 2

December, 1994

Well, nothing like a bit of controversy to kick start a new publication. Our mailing list seems to have increased in proportion. I think it's appropriate to say at this stage that the opinions expressed in this newsletter are not necessarily those of the editor or the Queen Victoria Museum and Art Gallery.

Thanks to all those who have contributed to the newsletter, made suggestions and also to those people who replied to the request for details of postal addresses etc. A copy of the register will be sent out with the next newsletter in March. The deadline for the next newsletter will be Friday 3rd March, 1995. If contributions are more than 150 words in length, please send on disk as an ASCII or text file! Thank you. Merry Christmas and all that kind of thing.

Louise McGowan
Editor

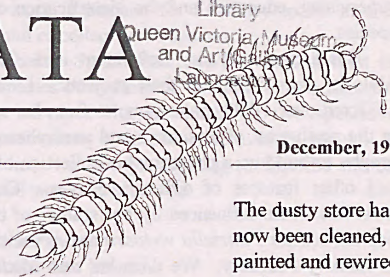
QVMAG
Wellington St
Launceston Tasmania 7250.

Around the Traps.....

Tasmanian Museum & Art Gallery

The invertebrate spirit store at TMAG has been under siege during the past month. Roger Buttermore compiled quotes on compactus unit storage and the final decision resulted in a full-scale 'bucket brigade' of staff emptying the store. Thanks to the CSIRO we acquired an enormous amount of strong apple packing boxes (used by CSIRO on a similar project) and the dust of decades really flew.

Orchestrated by Roger, in a week every one of the thousands of bottles of specimens were packed taxonomically into the boxes and methodically piled into another room nearby. 'Methodically' turned out to be the right word! No sooner had we stacked hundreds of boxes on top of each other in several rows than we remembered the imminent visit of Glen Ingram from the Queensland Museum to study the terrestrial isopods! A frantic search of the bottom, back layers of boxes revealed the relevant containers (Glen spent a week making happy noises over them).



The dusty store has now been cleaned, painted and rewired with safe lighting.

The fumes of the floor sealer emptied the basement of its staff quicker than a fire drill and so the floor was finished off the following weekend. A new extractor fan has also been installed. (The room is now so pristine that it is rumoured that the end of year festivities should be held there). However, the compactus units should be in place and the store restocked by Christmas (1994??).

Ocean Care Day, on the 4th December, resulted in two displays by the Tasmanian Museum's Invertebrate Zoology staff. On the 3rd December Margie Morrice set up a touch tank with specimens and relevant information for the introduced northern Pacific seastar, *Asterias amurensis*, in a marquee on the grounds of Parliament House. Pink, furry 'travel bugs' supplied by the Australian Quarantine and Inspection Service to stick on T-shirts etc., proved a big success with visiting children. Several other agencies also displayed coastal themes.

Meanwhile, back at the museum and sunny beaches, Liz Turner was hard at work beachcombing for a display at the TMAG on the ecological differences of ocean and sheltered/estuarine beaches, with associated pollution. The results are two sloping containers with genuine Marion Bay and Blackmans Bay sand to simulate the respective beaches. Marine life and pollution as they were found in situ have been reconstructed on the museum's Zoology Gallery floor. As these proved to be an irresistible attraction to children as sandpits, a barrier has had to be placed around the containers. The display will continue for the summer months.

Margie Morrice has nearly completed work on the introduced northern Pacific seastar funded for 1993/94 by the Australian Nature Conservation Agency. The final report will be submitted to ANCA in January 1995 and results will be available sometime in February on acceptance by the agency. Margie commences work on a new grant by ANCA in February based at the University of Tasmania. However, the TMAG will still be involved in

supervising, education and the identification of prey species.

Researchers Lynne Robertson and Christine Materia are winding up their projects. Lynne has collected over 4 000 spider samples from her surveys in the north-west of Tasmania and used photomicrography to build up a photographic collection of palps and other features of different species. Christine must have been influenced by her studies of the live bearing seastar *Patiriella vivipara* and is multiplying in January-February. We wish her and Michael all the best for their approaching parenthood.

Queen Victoria Museum & Art Gallery

Accompanying this edition of your newsletter you will have found a registration form for the Biogeography of North-east Tasmania Symposium, to be held in Launceston between the 4th and 6th February 1995. Thirty specialists with expertise in earth sciences, botany and both vertebrate and invertebrate zoology will discuss the special significance of north-east Tasmania to their area of interest. The programme will be of great relevance to anyone with either a scientific or personal interest in the distribution of Tasmania's flora and fauna. The programme will comprise two days of concise presentations and a full day excursion to allow the speakers to expand upon the content of their talks. The programme has been sponsored by the Plomley Foundation, enabling all this to happen for a mere \$150 per person, including lunch and morning and afternoon tea each day, a welcoming reception, the bus tour and a copy of the symposium papers, to be published in the *Records of the Queen Victoria Museum and Art Gallery*. Please assist us with the organisation of this important event by registering as early as possible.

The zoology department was the successful bidder for a contract with the Department of Environment and Land Management to conduct a survey of the invertebrates of Pump House Point at Lake St Clair. Our invertebratologists Tim, Louise and Jane, accompanied by volunteers Daniel and Paula spent three days intensively sampling a small area on the shores of the lake that has been proposed as the site for a future tourist development. The study site has previously been disturbed and modified by the HEC activities associated with the water pumping installa-

tion and the building of houses. We have arranged for ants, centipedes, millipedes, earthworms, amphipods, isopods, molluscs, beetles and orthopterans to be identified for our report. If anyone wishes to examine material belonging to their own group of interest from this previously poorly collected locality, please get in touch with us.

Current Projects.....

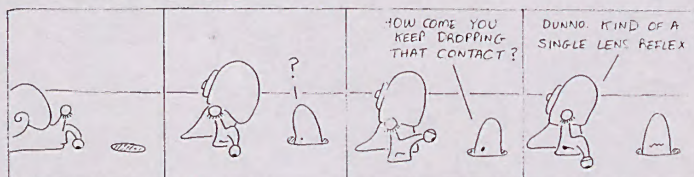
Isopods from Queensland

From the 8th to 18th November, 1994, Dr Glen Ingram, Senior Curator (Vertebrates) in the Queensland Museum, visited the QVMAG. Glen has transferred his research interest to invertebrates in order to study the Oniscidea (terrestrial isopoda, or slaters) which live in Queensland. He came south to work with Alison Green (Alison officially retired, three years ago, from her position as Curator of Invertebrate Zoology at the TMAG. However, as another zoologist remarked at the time, 'We never retire!').

Glen brought with him many land isopods from the Queensland Museum's collection for Alison to examine and identify. In the time available it was not possible to look at all of these and others needed detailed study for placement below family level. Nevertheless, some exciting finds were made.

Results of Swedish Scientific Expeditions to Australia, 1910-1912, were published in 1922. Some of the Queensland Oniscidea described then had not been recognised since. In particular, one very unusual species (a relative of shore slaters which live in rain forest) was known from just one female. Now there are two more samples, both including males. Alison was very pleased to see actual animals belonging to several of the species which she had only read about previously.

Glen is intrigued by spiny, enrolling isopods which live in forest on the mountains of North Queensland. When rolled up they look like burrs. These were sorted into five species only one of which has been named and described. An endemic Australian genus, characteristic of drier country further west, has been recognised for the first time in Queensland. A southern genus, well represented in Tasmania, has been found much further north than was expected. However, the real surprise was the



discovery, in North Queensland, of a family of Oniscidea not recognised in Australia before now.

The intriguing terrestrial isopod fauna of Queensland will make a very interesting study!

Alison Green
C/- QVMAG

Waterwatch

The waterwatch programme was announced by the Prime Minister, Mr Keating, in December 1992 as part of his statement on the environment.

The programme aims to provide a national focus for existing community based water quality monitoring programmes such as Streamwatch (NSW) and Ribbons of Blue (WA and VIC), and to encourage the emergence of new programmes like these.

Below is an example of fields for a data entry text file in the Biological Monitoring Section.

Macro Invertebrates

Rating: Diversity:

Stonefly nymphs	Mayfly Nymphs
FW shrimps	dobsonflies
FW mussels	FW prawns
amphipods	FW crayfish
dragonfly nymphs	damsel fly nymphs
caddisfly larvae water mites	
beetles	true bugs
leeches	snails
flatworms	blackfly larvae
mosquito larvae fly larvae	
non-biting midges	FW worms
aquatic moth larvae	other

If you wish to become more involved or would like to offer your expertise please contact Waterwatch.

Mike Cassidy
State Co-ordinator
Waterwatch
P.O. Box 46
Kings Meadows Tasmania 7249

Hydrobiid Gastropods

Winston Ponder, Alison Miller and Gerard Clark are currently monographing the remaining major group of freshwater hydrobiid snails from Tasmania and South-East Australia. These are the members of the *Fluviodona* group - previously known under the names *Pupiphrya* and *Rivisessor*. About thirty morphospecies have been identified at this stage.

Field work is planned for February to fill in a few gaps and re collect some species.

Recently Stefan Eberhard collected at least thirteen species of hydrobiids from the Precipitous Bluff group of caves. A maximum of two species are known from any other cave system in Tasmania. Any ideas how we can get funding to describe the cave material would be welcome.

Winston Ponder
The Australian Museum
P.O. Box A285
Sydney South, N.S.W. 2000

Spider Survey - conducted by TMAG

A National Estate grant has enabled a survey of spiders in wet forest and regeneration wet forest in the north-west of Tasmania. The regions surveyed were Sumac (south of the Arthur River, south of Smithton) Hellyer Gorge, Winterbrook (south of Ulverstone) and Cradle Mountain and range from 200 to 800 m above sea level.

Collection of spiders was conducted using four techniques: day and night hand collecting, pitfall traps, sweep netting and some litter and moss samples which were 'Burlesse Funnelled'. An attempt will be made to discover whether there is any difference in the distribution due to vegetation type ie. mature forest vs regeneration wet forest, although the main aim is to survey these areas for new species.

Lynne Robertson
Zoology Department
Tasmanian Museum & Art Gallery
Macquarie St
Hobart Tasmania 7000

Jewell Beetles

Castiarina rudis and *Castiarina macquillani* are two very rare jewell beetles endemic to alpine regions of Tasmania. The female holotype of *C. rudis* was collected at Great Lake in 1931. I've seen three other specimens. One from Lake Dobson, one from Lake St Clair and one washed up on the beach at Coles Bay. All specimens were collected in January. A few years ago I was collecting on Ben Lomond in January with two other people. We were looking on the flowers of *Leptospermum rupestre* and independently we all saw what we thought were single specimens of *C. rudis*. The one I saw was a particularly frustrating encounter because the insect was flying over a scree slope and although I was able to get my net within

inches of the specimen I could not run fast enough to catch it. The beetle is between 1.5 - 2.0 cm in length, the basal colour is a dark blue-green, with reddish markings on the elytra which are heavily costate and the body is extremely hairy for this genus. *C. macquillani* is known from three specimens all collected by Peter McQuillan. Two of them were from near the summit of Mt Algonkian and the third from the summit of Mt Doris. They were all found on the flowers of *Leptospermum rupestre*. This species is about 1.2 cm long, it is green with yellow markings on the elytra and the body is hairy. I'd be delighted for the loan of any further specimens collected of either species, particularly a female of the second species which is only known from males at this point in time.

Shelley Barker
Zoology Department
University of Adelaide
Adelaide, S.A. 5005

Letters.....

Dear Louise,

Thank you very much for sending me the first edition of *Invertebrata*. I read this with interest. It is good to know that so much taxonomic work is going on in a place where the fauna is so interesting.

My own work is on aquatic oligochaetes, and I have had the pleasure of working with Wayne Fulton in the past. At the moment Mr Adrian Pinder of the Museum of Victoria and I are completing a revision of the Australian aquatic oligochaetes under an ABRIS grant. We have a lot of Tasmanian records and Adrian has these all on a data base. He intends to publish several papers in the near future, as well as producing a definitive version of a diagnostic key to the group, already distributed as a spiral bound preliminary key as Identification Guide No.1 of the CRC for Freshwater Ecology, Ellis Street, Thurgooona, Albury, NSW 2640.

One day I actually hope to visit Tasmania rather than having fascinating worms sent from there in small vials. Until then, I will read my newsletter.

Thanks again,
Ralph Brinkhurst.
Aquatic Resources Center
Franklin, TN
USA

Articles.....

Where it all started.

Abel Tasman sighted the west coast of Tasmania on 24 November 1642 by our calendar. (His calendar was Old Style, so he recorded the date as 3 December.) Tasman's ships, the Heemskerck and Zeehaen, spent the next week working around the south coast and anchored on 2 December in North Bay, on Forestier Peninsula. On 3 December two boats, one from each ship, rounded a point northwest of the anchorage and proceeded into Blackman Bay in search of wood, water and edible greens. The party landed and watered on the western shore of the Bay, and on returning to the ships the party leader, Pilot-Major Francois Jacobsz, reported on what he had seen to Tasman.

Included in Tasman's paraphrase of that report is a reference to a Tasmanian invertebrate, the first such reference on record and the only one in Tasman's journal. Unfortunately, the passage in question has been handled rather badly by its translators. Here's the original Dutch, as transcribed by Swart (1860; p. 71):

Dat voor aen omgeseyden hoeck meeichte van meeuwen, wilde entvogels en ganzen, maer landewaert in geen gesien, doch 't geruchte daervan wel gehoort hadden, hebbende geen visch als verscheide mosselen (op verscheide plaetsen by bosiens vastzittende) vernommen.

A translation by the Rev. C.G. Woide appeared in Burney's *Voyages* and became the standard version for much of the 19th century:

Before the said corner they saw people; and some wild ducks, and geese. They took no fish except muscles which stuck to little bushes. (Burney, 1813; pp. 70-71).

Matthew Flinders' *Voyage to Terra Australis* repeated the observation that

Muscles were found sticking to bushes, in different places. (Flinders, 1966; p. lxxx).

In 1896 the historian James Backhouse Walker published what he called a literal translation of Swart's transcription. The aborigines were dismissed, but the bivalves remained on the greenery:

That in the entrance of the said point they had seen a multitude of gulls, wild ducks and geese, but none landward; though they had indeed heard the noise of them; and had observed no fish, but divers mussels sticking in sundry places on bushes. (Walker, 1896; p. 53).

A translation by J.E. Heeres was included in the 1898 facsimile edition of Tasman's journal:

That at the extremity of the said point they had seen large numbers of gulls, wild ducks and geese, but had perceived none farther inward, though they had heard their cries; and had found no fish except different kinds of mussels forming small clusters in several places. (Heeres, 1898; p. 15 of translation).

Finally, a new translation appeared in 1968 in a very scholarly study of Tasman's voyages by A. Sharp:

That round said point, numbers of wild gulls and birds and geese; but inland [they had] seen none; but had indeed heard the noises therefrom; having found no fish but various mussels (in various places lying stuck together in clusters). (Sharp, 1968; p. 111).

I think it's safe to assume that the mussels weren't stuck to bushes, and that they were enjoyed by the Dutch sailors. Should Invertebrata use mussels for its logo?

Bob Mesibov
Research Associate
Queen Victoria Museum and Art Gallery

Burney, J. 1813. A Chronological History of the Voyages and Discoveries in the South Sea or Pacific Ocean. Part III. From the Year 1620, to the Year 1688. London: Luke Hansard and Sons.

Flinders, M. 1966. A Voyage to Terra Australis... Vol. I. London: G. & W. Nicol, 1814, as Australian Facsimile Editions No. 37; Adelaide: Libraries Board of South Australia.

Heeres, J. 1898. Abel Janszoon Tasman's Journal of His Discovery of Van Diemens Land and New Zealand in 1644, Being Photo-Lithographic Facsimiles of the Original Manuscript in the Colonial Archives at the Hague... Amsterdam: Frederik Muller & Co.

Sharp, A. 1968. The Voyages of Abel Janszoon Tasman. Oxford: Clarendon Press.

Swart, J. 1860. Journaal van de Reis naar het onbekende Zuidland, in den Jare 1642, door Abel Jansz. Tasman, met de Schepen Heemskerck en de Zeehaen. Amsterdam: G. Hulst van Keulen.

Walker, J.B. 1896. Abel Janszoon Tasman: His Life and Voyages. Hobart: Government Printer.

Leech Bites - Goodies and Baddies

Most people involved in bush activities, have encountered leeches if not actually been bitten. Those bitten usually suffer minimal effects other than revulsion at the sight of blood or feeding animal when present. However, some unfortunates, such as myself, have insult added to injury by being allergic to the histamines injected in leech saliva. In January 1994 at Nunamara, both legs were bitten in roughly corresponding positions slightly lower and posterior to the inside of the knee. The victim had only been bitten once, some six years previously, on the lower left calf. At the time the symptoms seemed normal, but in retrospect may have been worse than thought.

The bite to the left leg being the worst was washed and bathed with Dettol, the other simply washed. A cottonwool dressing covered with surgical tape was applied to both. Over the next few days, the left wound progressively worsened, with blistering around the bite, swelling and redness of the knee, calf and ankle, the latter very swollen with severe itching, 'Polarmine' antihistamine tablets were taken. On day 5, coincidentally at Reaction Peak, medical advice was sought and an antibiotic, Augmentin, prescribed in addition to antihistamines. The symptoms gradually subsided, inflammation clearing by day 15. The bite site remained visible for many months. Strangely, the right leg had no problems other than those normal for a leech bite ie. minor swelling, redness and slight itching. The wound healed, almost vanishing. It is unknown why one bite reacted severely, most symptoms appearing allergenic rather than bacterial, while another progressed benignly. Serious leech bites have been reported from other parts of the state, Nunamara may now be included. A local forestry employee reported collecting many bites, (up to fourteen in one day) with a co worker receiving nineteen. The leeches were pulled off and thrown away. When bitten no effects other than 'occasional itching' were experienced. He did become sensitive to them crawling on his skin and could remove them before they bit.

The doctor reported sustaining numerous bites while bushwalking and 'bleeding like a stuck pig' with bleeding recurring up to two months after the wound healed.

The perpetrator of the left injury was captured but died on day 5 (revenge is sweet) before proper identification. Photographs taken before death combined with size (60 mm) indicate a possibility of it being *Philaemongrandis* sp. The second culprit was not found. Leech bites then, as with other bites and stings, must be treated with some respect and susceptible persons made aware of their potential to cause serious, even life threatening conditions. It would be interesting to know what percentage of bite victims have suffered severe and/or unusual symptoms, undoubtedly most have gone unreported. Perhaps other readers may be able to fill in some of the gaps in our knowledge of the unloved but fascinating leech.

Mike Tobias

Amateur Naturalist

(Mike also provides excellent drawings both scientific and illustrative. Mike chose the millipede, *Lissodesmus* sp., for *Invertebrata*. Ed.)

An Unusual Proliferation of Heart Urchins,

Echinocardium cordatum.

The common sand or heart urchin - *Echinocardium cordatum* - is unique to Australia's coastline because it's the only sea urchin with a world wide distribution. Mostly it is observed as odd specimens along the shoreline of calm estuarine tidal waters, or as delicate, star patterned, egg shell-like 'tests' among the flotsam and jetsam. Usually though, due to their burrowing habits, heart urchins are more of an occasional 'find' than an abundant seashore invertebrate.

However in mid October 1994, an apparent population explosion of this echinoderm occurred in Henderson Lagoon at Falmouth. Thousands of live heart urchins, ranging from 25 to 40 mm in length, were visible literally 'shoulder to shoulder' around the stillwater tideline. Such a phenomenon has not been seen by the author in over thirty-five years of observations. By early November most of the urchins were dead or dying, and by the end of that month only odd 'tests' remained.

The explanation for the sudden appearance of *E. cordatum* in such numbers can only be a matter of speculation, based on extant physical circumstances. For instance, initiation of the phenomenon coincided with the lengthy dry spell during which only 8 mm of rain was recorded in twenty-five days. Spring tides, associated with the full moon on 19th October, might also have been relevant. It seems reasonable to presume that either a food abundance or a food short-

age caused them to emerge from their sand caves, but beyond that it is impossible to guess.

A singular feature of the Falmouth heart urchin incident was that no other species seemed to be involved. Apart from soldier crabs - *Mictyris platycheles* - which abound in the area, there were few other signs of life. No sea hares were evident, nor any escalation in species or numbers of univalve or bivalve molluscs. This is in contradistinction to an extraordinary localised abundance of intertidal invertebrates occurring at Falmouth eighteen months ago, which was investigated by staff at the QVMAG.

Notwithstanding the absence of any explanation for the *Echinocardium cordatum* abundance it is important that such events be recorded and epitomises the worth of such in house publications as *Invertebrata*.

Tim McManus

Veterinary Extension Officer

Department of Primary Industry and Fisheries
Tasmania.

The Bumble Bees are really buzzing!

As a result of articles in *The Mercury* (9 October) and *Star* (18 October) newspapers, over 160 people have contacted Trevor Semmens of the DPIF in Hobart, about sightings of the bumble bee. This bee was first found in Tasmania in a Battery Point (Hobart, Tasmania) garden in February 1992. They are now quite widespread throughout the Hobart area. They are particularly prevalent in the areas of Dynnyme, south Hobart and west Hobart.

Areas outside of Hobart with sightings so far are Neika, Cygnet, Adventure Bay and Fentonbury. Unconfirmed sightings are from *The Gorge* in Launceston, Freycinet National Park and Little Chinaman's Bay.

To date they have been seen to be visiting some eighty-one types of plant.

Trevor Semmens

DPIF

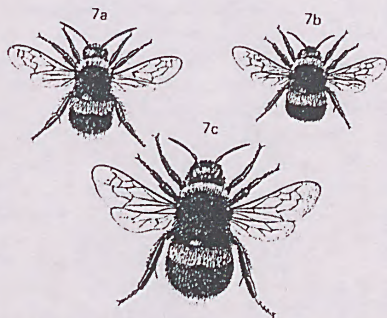
St Johns Avenue

New Town, Tasmania, 7000.

Bumble Bee Watch

Bumble bees are distinctive from honey or native bees by their larger size and covering of hair. They range in size from one to two centimetres in length and have short wings. They have one yellow stripe across the head and two yellow stripes across the body.

With Summer upon us the bees are a-buzzing, so if you spot one, please let Trevor know where and on what plants it was seen. His phone number is (002) 336838. Some samples to confirm the identity would also be appreciated.



Buff-tailed humble bee - *Bombus terrestris*

7a. drone 7b. worker 7c. queen

The Myrmecia of Tasmania (bullants and jumper ants)

The primitive ant genus, *Myrmecia*, is endemic to Australia except for one New Caledonian species, *M. apicalis* Emery. The genus comprises the bulldog and jumper ants; in all more than 115 species. The Tasmanian fauna includes five recognised species.

1. *M. forficata* Fab. A large dark red to black ant, nocturnal in its foraging, nesting in the soil, under rocks, in stumps and in dry logs. It is very common in coastal heath, in wet and dry sclerophyll, coast and well into the ranges. It is not found in fern and rain forest. It is found on Flinders, King, Maria and Bruny Islands.

M. pyriformis F. Smith has been recorded (1908) from King Island, but almost certainly mistaken for *M. forficata* which it closely resembles. Despite intensive searching, there has been no sign of *M. pyriformis* with its conspicuous mounds on the islands or anywhere else in Tasmania. *M. pyriformis* is an ant of dry sclerophyll. King Island with its high and consistent rainfall would be an unlikely habitat for it. King Island specimens of *M. pyriformis* in the ANIC

are definitely *M. forficata*. Moreover, John Clark does not record the species from Tasmania.**

2. *M. esuriens* Fab. (*esuriens* meaning voracious). Smaller than *M. forficata*, black and red in colour, an aggressive daylight forager, nesting under rocks and occasionally in dry logs. It is widespread and locally common, from the coast to the ranges and well into alpine plateau country. It is not found in rainforest. It is present on Maria and Bruny Islands but absent on King and Flinders Islands. On present evidence it appears to be endemic to Tasmania.

3. *M. fulvipes* Roger. A shiny black jumper with bright red legs, small colonies of fifty or less workers, nesting in soil and under rocks, widespread and locally common it is found in dry and wet sclerophyll from the coast to local ranges. It is found on Flinders, Maria and Bruny Islands but not on King Island.

4. *M. pilosula* F. Smith. This is the notorious 'jack jumper'. It is proving to be a complex of closely related species that await closer definition. *M. pilosula* is abundant throughout Tasmania. It is found on beaches, in coastal scrub and heath, in dry sclerophyll, grasslands and lawns, ranges and the central plateau, and it has spread rapidly along the roadsides. It is not found in moss or rainforest nor in any form of forest with a thick understorey of bracken, blackberry or anything else. It is a troublesome ant, a fast aggressive jumper and a daylight forager. Its sting is not severe, but to people allergic to proteinaceous venom, it can be dangerous. In south-eastern Australia there have even been deaths from its sting. The familiar dome-shaped mounds of *M. pilosula* house hundreds and often many thousands of ants.

5. *M. urens* Lowne. Prior to 1991, this species was recorded only once in Tasmania, from Launceston.** Actually, it is rare but widespread in the central north, the north-east and along the east coast of Tasmania (generally east of the Bass Highway). It is common on Flinders Island, rare on Bruny Island and absent from Maria and King Islands. Its habitat is dry sclerophyll and coastal scrub and heath. At a glance *M. urens* closely resembles a small *M. pilosula*, hence it is seldom recognised. It seems likely that, as with many Tasmanian ant species, its population is increasing with the felling and thinning of forest, with the elimination of bracken fern and the opening up of roads and tracks through the bushland. The species is spreading successfully along roadside and riverside. *M. urens* is the smallest of the jumper ants, black with yellow mandibles. It is a non aggressive daylight forager on trees and flowering shrubs, sweep-netting often reveals its presence. It has a mild sting and its colonies (in Tasmania) are small, usually

with less than twenty workers. Nests are in the soil and sometimes after it rains the nest is surmounted with an earthen spout 1-3 cm high.

Bede Lowery
Amateur Naturalist
Devonport, Tasmania.

** Clark, J. (1951). The Formicidae of Australia Vol.1, p.99.

Databasing The Multipedes

A curious feature of many invertebrate groups is that their species-level diversity increases dramatically with study. In the case of my beloved Tasmanian centipedes and millipedes, a 'manageable' set of perhaps two dozen forms has grown over the past fifteen years into roughly 150 easily-defined morphospecies. The species growth rate seems now to be levelling off, but neither I nor anyone else has been brave enough to look at chromosomal or molecular variation in our 'multipede' populations. The prospects are chilling.

Even sticking to morphology, however, I have a problem as a taxonomist and zoogeographer: keeping track of records. Multipedes have now been collected from some 1 500 sites around the State, resulting in tens of thousands of species records, every one of which is valuable. Record-keeping on paper is clearly out of the question.

My solution has been to maintain flat-file electronic databases on my home PC, one for each species-level taxon. These are specimen databases. Each record includes a locality name, map grid reference, elevation, date of collection, collector's name, number of specimens, sex, where deposited, registration number and 'remarks' (other useful information). Because thematic mapping and GIS-databasing is so well advanced in Tasmania, I don't feel the need to include macrohabitat descriptions in the records - the

grid reference, to the nearest one hectare, tells the story implicitly.

The specimen databases are in Windows software, which allows great flexibility in compiling, editing, studying and publishing the data. Locality information, for example, is typed just once into a collecting-site database, then quickly 'Clipboard'-ed when needed into my taxon files. I am currently associating each taxon file with a (digitised) distribution map, and I plan to link bibliographic and anatomical graphics files with taxon files in the near future.

Because I have attempted to secure every known record for the multipede species databases, I have become, whether I like it or not, a 'taxon steward' for this element of our fauna. I intend sharing this responsibility by depositing electronic and paper copies of all databases at the QVMAG, but because the databases are and will remain my intellectual property, access to the QVMAG copies will be restricted. Feel free, however, to query me directly about Tasmanian multipedes, and of course I'm always willing to try to identify any specimens you collect - in exchange for the locality data!

Efficient 'taxon stewardship' is now relatively cheap. IBM-style PC's with 486 processors, 4mb RAM and 200+mb hard-drives are currently selling, already loaded with a range of 'Windows' software (within MSDOS 6.2), for less than \$2000. The power to electronically store and manage very large taxonomic data-sets is readily available to home-based amateurs as well as institution-based professionals, and the latter might well consider encouraging the former to 'tidy up' what we know about Tasmanian invertebrate groups not currently under active investigation. The result would be a broader and handier knowledge base for all.

Bob Mesibov
Research Associate
QVMAG

